

TECHNICAL APPENDIX

SES-18 AT 103.05° W.L AND SES-19 AT 134.9° W.L

1.0 Overall Description: §25.114(d)(1)

This technical appendix is submitted in support of the applications of SES Americom, Inc. (SES) to modify the licenses for the SES-18¹ and SES-19² C-band fixed-satellite service space stations to permit use of additional C-band telemetry, telecommand and control (“TT&C”) frequencies. Specifically, SES seeks authority to use the 6415-6425 MHz band for Earth-to-space telecommand communications and the 4190-4200 MHz band for space-to-Earth telemetry communications for both satellites.

SES incorporates by reference the technical information it has already submitted regarding SES-18 and SES-19, and provides here technical information relating to the proposed modifications.³

2.0 Telemetry, Telecommand and Control Facilities

As SES noted in the initial applications for the satellites, SES-18 and SES-19 have on-orbit programmable frequency-flexible TT&C with a frequency step resolution of 100 kHz.⁴ SES seeks flexibility to select frequencies within the 6415-6425 MHz range for Earth-to-space telecommand communications and within the 4190-4200 MHz range for space-to-Earth telemetry communications. The bandwidth for the TT&C channels will not change.

Accordingly, in the attached Schedule S submissions, SES has modified the receiving TT&C beam CGR from the previously authorized 6420.7-6421.3 MHz for SES-18 and 6423.2-6423.8 MHz for SES-19 to 6415.0-6425.0 MHz for both satellites. SES also added two receiving channels to SES-18’s Schedule S, with center frequencies of 6419.5 MHz and 6417.0 MHz, and one receiving channel to SES-19’s Schedule S, with center frequency of 6417.0 MHz.

¹ *SES Americom, Inc.*, Call Sign S3096, File Nos. SAT-RPL-20210812-00099 (“SES-18 Application”), granted March 4, 2022, & SAT-MOD-20230201-00011 (“SES-18 Fleet Management Notice”) (advising the Commission that SES intends to deploy SES-18 to 103.05° W.L. rather than to 131° W.L.).

² *SES Americom, Inc.*, Call Sign S3097, File Nos. SAT-RPL-20210812-00100, granted March 4, 2022, & SAT-MOD-20230201-00012 (“SES-19 Fleet Management Notice”) (advising the Commission that SES intends to deploy SES-19 to 134.9° W.L., rather than to 103.05° W.L.).

³ The Schedule S attached to each application describes operation of the satellites at the orbital locations identified in the fleet management notices for the satellites. The Schedule S rounds the SES-18 orbital location to 103.0° W.L., but the orbital location specified in the SES-18 Fleet Management Notice is 103.05° W.L. The Schedule S rounds the SES-19 orbital location to 135.0° W.L., but the orbital location specified in the SES-19 Fleet Management Notice is 134.9° W.L.

⁴ *See, e.g.*, SES-18 Application, Technical Appendix at 2.

Similarly, SES modified the transmitting TT&C beam CGT from the previously authorized 4197.0-4199.7 MHz for SES-18 and SES-19 to 4190.0-4200.0 MHz for both satellites. SES added two transmitting channels to each Schedule S, with a center frequency of 4192.0 and 4194.0 MHz for both SES-18 and SES-19.

DECLARATION

I, Yuan Yan Tay, hereby certify under penalty of perjury that I am the technically qualified person responsible for preparation of the technical information contained in the foregoing exhibit; that I am familiar with the technical requirements of Part 25; and that I either prepared or reviewed the technical information contained in the exhibit and that it is complete and accurate to the best of my knowledge, information and belief.

/s/ Yuan Yan Tay

Engineer, Spectrum Management and Development
SES

Dated: February 1, 2023